I. COVER SHEET

C1024

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title:	**Lower Clear Creek Floodway Restoration Project**
Applicant Name:	Western Shasta Resource Conservation District
Primary Contact:	Jeff Souza
Mailing Address:	3179 Bechelli Lane, Suite 110 Redding, CA 96002
Telephone:	(530) 246-5299
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Amount of funding requested: $5,983,489 for three years.

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision:

- ☐ Fish Passage Assessment
- ☐ Fish Passage Improvements
- ☑ Floodplain and Habitat Restoration
- ☐ Gravel Restoration
- ☐ Fish Harvest
- ☐ Species Life History Studies
- ☐ Watershed Planning/Implementation
- ☐ Education
- ☐ Fish Screen Evaluations-Alternatives and Biological Priorities

Indicate the geographic area of your proposal (check only one box):

- ☐ Sacramento River Mainstem
- ☑ Sacramento Tributary: CLEAR CREEK
- ☐ Delta
- ☐ East Side Delta Tributary: _____
- ☐ Suisun Marsh and Bay
- ☐ San Joaquin Tributary: _____
- ☐ San Joaquin River Mainstem
- ☐ Other: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ North Bay: _____

Indicate the primary species which the proposal addresses (check no more than two boxes):

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ☐ Winter-run chinook salmon
- ☑ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ☑ Fall-run chinook salmon
- ☐ Delta smelt
- ☐ Longfin smelt
- ☐ Splittail
- ☐ Steelhead trout
- ☐ Green sturgeon
- ☐ Striped bass
- ☐ Migratory birds

Indicate the type of applicant (check only one box):

- ☐ State agency
- ☐ Public/Non-profit joint venture
- ☑ Local government/district
- ☐ University
- ☐ Federal agency
- ☐ Non-profit
- ☐ Private party
- ☐ Other:

Indicate the type of project (check only one box):

- ☐ Planning
- ☐ Monitoring
- ☐ Research
- ☑ Implementation
- ☐ Education

By signing below, the applicant declares the following:

1) The truthfulness of all representations in their proposal;

2) The individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and

3) The person submitting the application has read and understood the conflict of interest and confidentially discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

VICE PRESIDENT

(Signature of Applicant) WESTERN SHASTA RESOURCE CONSERVATION DISTRICT

II. EXECUTIVE SUMMARY

PROJECT TITLE: **Lower Clear Creek Floodway Restoration Project**
PROJECT APPLICANT: **Western Shasta Resource Conservation District**

PROJECT DESCRIPTION AND PRIMARY OBJECTIVES: Lower Clear Creek, located in the North Sacramento Valley Ecological Zone, offers one of the best opportunities for river ecosystem restoration to support anadromous fish populations of all Central Valley tributaries. This proposal outlines a strategy for restoring 2.9 miles of floodplain and riverine aquatic habitats in two locations on lower Clear Creek (Figures 1 and 2). Historic instream aggregate extraction in a 1.9 mile reach (Mined Reach) removed natural point bars, floodplains, and riparian vegetation, leaving a multi-channeled, unconfined floodway with numerous ecological problems. The remaining one mile (Reading Bar Reach) is covered with dredger tailings, which confine the channel and prevent a functional floodplain from forming. The Clear Creek Technical Work Group has identified the Mined Reach as a significant stressor to ecological health and anadromous fish production in lower Clear Creek, including spring-run, fall-run, and late fall-run chinook salmon (*Oncorhynchus tshawytscha*), and steelhead (*Oncorhynchus mykiss*) populations. Therefore, this reach is a top priority restoration activity as identified in the fisheries restoration element of the CRMP plan to restore river ecosystem health and robust salmonid populations. During restoration, dredger material removed from the Reading Bar Reach for channel and floodplain reconstruction at the Mined Reach will restore a functional floodplain at the Reading borrow site, restoring two sites simultaneously. Objectives of the Lower Clear Creek Floodplain Restoration Project are:

- Reverse channel degradation caused by historic aggregate extraction in the Mined Reach by reconstructing a properly sized bankfull channel and floodplain;
- Restore the ability of the channel to route coarse sediment downstream and deposit fine sediment on floodplain surfaces;
- Restore native riparian vegetation on floodplain and terrace surfaces by focusing on species that provide canopy structure and removing competing exotic species;
- Reduce salmonid stranding and mortality in floodplain extraction pits;
- Provide improved habitat conditions for native fish and wildlife species including priority salmonid species of central concern to CALFED, CVPIA, and AFRP programs;

APPROACH/TASKS/SCHEDULE: This restoration project will restore floodway function and morphology by recreating a bankfull channel, functional floodplain, gravel supply, and native riparian vegetation. The project is logically divided into the following four phases (Figures 4-7), with restoration of an upstream borrow site conducted concurrently with all phases (Figure 3). Phase 1 (FY1998) is the inaugural phase that will begin reducing juvenile and adult stranding at the Mined Reach and create and revegetate a functional floodplain at the Reading Bar Reach site. Phase 2 (FY 1998-99) is the largest of the phases, and will restore functional floodplains and reduce salmonid stranding at Mined Reach by filling aggregate extraction pits with imported dredger tailings to elevations that inundate at contemporary bankfull discharge. Functional floodplains and off-channel wetlands will be restored and revegetated at both reaches. Phase 3 (FY 1999-2000) will focus on reconstructing and raising the bankfull channel above bedrock and hard-pan. Functional floodplains and off-channel wetlands will again be created at both Reaches, and revegetated with native riparian species.

Phase 4 (FY 2000-2001) will restore flow into a section of historical channel that had been diverted by instream aggregate activity. Excavated bars and floodplains will be restored and revegetated with native riparian vegetation, and functional floodplains and off-channel wetlands will continue to be created at the Reading Bar Reach borrow site.

JUSTIFICATION FOR PROJECT AND FUNDING BY CALFED: Lower Clear Creek alteration has primarily resulted from gold dredging and instream aggregate extraction. Funding this project will rehabilitate the two sites where alteration has been most extensive, and combined with Saeltzer Dam removal, will complete all large-scale channel reconstruction needs on Clear Creek. The project promotes the CALFED goal of improving and increasing aquatic and terrestrial habitats and improving ecological functions by addressing several ecosystem elements identified in the ERPP, including ecological processes (natural sediment supply, stream meander, floodplain processes), riparian and riverine aquatic habitats, and priority species including spring-run, fall-run, and late fall-run chinook salmon, and steelhead. The project will provide direct benefit to those and other species, and to the ecological recovery of Clear Creek and the North Sacramento Valley Ecological Zone. Phase 1 is being funded by CVPIA [Section 3406(b)(12)], in coordination with the Coordinated Resource Management Planning group (CRMP), the Technical Work Group, USBR and BLM. Because restoration will occur at both the reconstruction site and borrow site, the project is extremely cost-effective. Pending CVPIA funding for Phase 2 implementation will provide significant cost sharing to CALFED funding.

BUDGET COSTS AND THIRD PARTY IMPACTS: The estimated total cost of Phase 2 is $4,059,596. Of this total, $3,559,596 is requested from CALFED, and $500,000 will be provided by CVPIA pending funding approval. Estimated total costs for Phase 3 and Phase 4 are $1,380,231 and $1,043,661, respectively. This project is being implemented under the auspices of the lower Clear Creek Technical Work Group and CRMP group, which should avoid any potential third party impacts. All phases, including restoration of the borrow site, are or will soon be on public land, which will further reduce any likelihood of third party impacts.

APPLICANT QUALIFICATIONS: This project will be implemented under the direction of the Western Shasta Resource Conservation District, which has been implementing wildlife and fisheries restoration projects, erosion control projects, fuels reduction projects, and coordinated resource planning projects in Shasta County since 1957. In 1997 and 1998, the RCD has implemented numerous projects on lower Clear Creek, including spawning gravel introduction, a watershed analysis, and erosion control projects.

MONITORING AND DATA EVALUATION: This project will develop a project-specific monitoring plan to evaluate whether geomorphic, biological, and riparian restoration objectives are being met, and will use monitoring results to improve future restoration phases.

LOCAL SUPPORT/COORDINATION WITH OTHER PROGRAMS/COMPATIBILITY WITH CALFED OBJECTIVES: This restoration project will coordinate closely with several on-going local, State, and Federal programs, including the Lower Clear Creek Coordinated Resource Management Planning (CRMP) group, the Lower Clear Creek Technical Work Group, the CVPIA-AFRP, and Comprehensive Assessment & Monitoring Program (CAMP).

III. TITLE PAGE

LOWER CLEAR CREEK FLOODWAY RESTORATION PROJECT

A Proposal Submitted by:

Western Shasta Resource Conservation District
3179 Bechelli Lane, Suite 110
Redding CA, 96002

Local government/district
Tax ID number: 68-028-5373

In collaboration with:

Lower Clear Creek Coordinated Resource Management and Planning Group

and

Lower Clear Creek Technical Work Group

June 30, 1998

IV. PROJECT DESCRIPTION

a. Project description and approach. The Lower Clear Creek Floodplain Restoration Project was developed to address two degraded reaches of Clear Creek (Figures 1 and 2): the 1.9 mile reach with extensive instream aggregate extraction activities (Mined Reach) and the 1.0 mile reach containing dredger tailings to be used as borrow materials (Reading Bar Reach). At the Mined Reach, extensive in-channel and floodplain aggregate extraction removed natural channel confinement, creating multiple low-flow channels and large pits. The pits and lack of a defined channel strands emigrating juvenile salmonids and discourages adult salmonid migration. The Reading Bar Reach was dredged for gold, and the tailings deposited onto the floodplain confine the channel. Additionally, construction of Saeltzer Dam in 1903 and Whiskeytown Dam in 1963 has disrupted natural streamflow patterns and greatly reduced coarse sediment supply to the channel. Cumulatively, these land-use impacts have degraded the Clear Creek channel and floodplains, reduced the quantity and quality of salmonid habitat, increased stranding and migrational mortality, reduced native riparian vegetation, sustained exotic vegetation, and has generally degraded the Clear Creek ecosystem.

The degraded ecological conditions combined with reduced streamflow and sediment regimes prevent natural rehabilitation at these two sites. Therefore, we propose to initiate rehabilitation by actively restoring a natural channel and floodplain morphology, and native riparian vegetation. Restoring the natural form to the channel and floodplains will initiate and sustain natural sediment transport processes and channel migration, restore aquatic, wetland and riparian habitats, floodplain connectivity and riparian regenerative processes, and thus ecological function to the riverine ecosystem.

At the Mined Reach, aggregate extraction pits within the contemporary floodway will be filled with dredger tailings extracted from the Reading Bar Reach to restore the bankfull channel and floodplain morphology, with elevations designed to inundate at contemporary bankfull discharge. By filling and isolating off-channel ponds, a single-thread bankfull channel will be restored that transports coarse bedload at bankfull discharge, allows channel migration, and allows the channel to build and adjust its own point bars and floodplains in the future. Filled ponds will no longer harbor predator fish species, nor pose fish stranding problems for migrating juvenile and adult salmon and steelhead. In addition, newly created floodplains will be revegetated with native riparian species, providing additional habitat for amphibian and terrestrial wildlife species. The channel restoration design will also provide immediate spawning habitat for chinook salmon by introducing appropriately-sized spawning gravels into the channel.

At the Reading Bar Reach, removal of dredger tailings will restore the floodplain, and eliminate the artificial channel confinement. A segment of riparian berm will be removed as a pilot evaluation of the potential for channel migration under contemporary flow regulation. Exotic vegetation will be removed and replaced with native riparian vegetation that will improve floodplain habitat. However, the primary role of the borrow site is to provide source material for immediate restoration needs and long-term gravel management.

This project has been divided into four phases for implementation. Phase 1 will initiate implementation, begin removal of borrow material from the Reading Bar Reach, and reduce

salmonid stranding at the Mined Reach pond complex. Phase 2 constitutes the majority of the earthwork, and will transport borrow material from the Reading Bar Reach to fill extraction pits at the Mined Reach and restore floodplain morphology. Restored floodplains will be revegetated with native riparian species. Phase 3 will restore the channel planform location, bed elevation, and a two-stage channel geometry (bankfull channel and floodplain). Phase 3 channel restoration is separated from Phase 2 to allow evaluation of sediment routing from Saeltzer Dam removal before channel rehabilitation work is conducted. Phase 4 is located at the downstream end of the Mined Reach, and will move a portion of the channel back into its pre-mining location and fill the bedrock diversion channel back to a floodplain elevation. Restored floodplains will also be revegetated as in other phases. All phases will use materials excavated from the Reading Bar Reach. As materials are extracted from the borrow site, floodplains will be restored and revegetated near the channel, and off-channel wetlands will be created to mitigate wetland losses at the Mined Reach (Figure 3).

b. Proposed scope of work:

PHASE 1.

Phase 1 will be implemented in summer/fall 1998 with CVPIA funding, and is a first-year triage to reduce the most significant stranding problem at the south bank pond complex. Phase 1 restoration activities include (Figure 4):

- Develop overall channel restoration strategy for the Mined Reach and Reading Bar Reach.
- Initiate project implementation by constructing a "plug" to restrict flow access into south bank pond complex, reducing juvenile and adult salmonid stranding
- Remove dredger tailings along the upstream end of Reading borrow site as gravel source for Phase 1 restoration; and long-term gravel management).
- Remove exotic vegetation (tree of heaven and Himalaya berry), remove short strip of riparian encroachment (white alder and Himalaya berry), and revegetate restored surfaces with native riparian species.
- Establish mitigation fund for future wetland mitigation at the Reading Bar borrow site.

(Funded for FY 1998 by CVPIA and BLM: $330,000)

PHASE 2.

Phase 2 will be implemented in summer/fall 1999 if funded by CALFED. Phase 2 is the largest and most expensive of all phases because it represents the majority of earthwork, filling pits to appropriate floodplain elevations, then revegetating restored floodplain surfaces with native riparian species. Phase 2 restoration activities include (Figure 5):

- Develop design documents for Phases 2 through 4 to expedite future implementation.
- Prepare CEQA/NEPA documents and environmental permits for Phases 2 through 4 to expedite future implementation.
- Recreate functional floodplains at the Mined Reach and the Reading Bar Reach.
- Mitigate wetlands loss by creating off-channel wetlands at the Reading Bar Reach.
- Reduce or eliminate juvenile and adult salmonid stranding by filling historic instream aggregate extraction pits to functional floodplains.
- Restore riparian vegetation on reconstructed floodplain surfaces.
- Remove exotic vegetation from Mined Reach and the Reading Bar Reach.

- Develop and implement biological, geomorphic, and riparian monitoring plan.

(CALFED Funding request: $4,059,596; Tentative CVPIA cost-share: $500,000; Tentative BLM wetland mitigation cost-share: $30,000)

PHASE 3.

Phase 3 will be implemented in summer/fall 2000 if funded by CALFED. Phase 3 will reconstruct the bankfull channel from the upstream project boundary to below the south bank pond complex (Figure 6). The channel planform will be realigned and re-sized at specific locations and the channel-bed elevation raised off the hardpan clay substrate by introducing cleaned and sorted gravel. Fill material will primarily be acquired on-site from excavated areas, or removed from the Reading Bar Reach. Newly created floodplains adjacent to relocated channels will be revegetated with riparian species. Phase 3 restoration activities are time to occur after removal of Saeltzer Dam to incorporate potential changes in coarse sediment loading into the design. Tasks will include:

- Restore natural channel morphology by re-sizing and realigning bankfull channel planform, constructing two-stage channel (bankfull channel and floodplain), and eliminating unconfined, multi-channel sections.
- Introduce cleaned and sorted gravels into the bankfull channel to raise channel-bed elevation off clay hard-pan and provide immediate spawning and rearing habitat for salmonids.
- Restore native riparian vegetation to floodplains.
- Remove exotic vegetation from Mined Reach and the Reading Bar Reach.
- Recreate functional floodplains at the Reading Bar Reach.

(CALFED Funding request: $1,380,231; CVPIA cost-share is uncertain)

PHASE 4.

Phase 4 will be implemented in summer/fall 2001 if funded by CALFED. Phase 4 will occur at the downstream end of the Mined Reach, and will restore flow to the historical channel that was diverted during aggregate extraction. The historic channel meandered in a wide arch to the north of a broad floodplain. The diversion channel along the south bluff is deep, narrow, swift, and confined by bedrock, providing little or no salmonid habitat. This channel will be filled and converted to floodplain. Phase 4 designs will be re-evaluated in light of Saeltzer Dam removal, and restoration activities include (Figure 7):

- Improve salmonid habitat by re-watering 2,500 ft of historical alluvial channel.
- Fill diverted channel and regrade floodplains to appropriate geomorphic elevations.
- Revegetate restored floodplains with native riparian vegetation.
- Remove exotic vegetation from Mined Reach and the Reading Bar Reach.
- Recreate functional floodplains at the Reading Bar Reach.

(CALFED Funding request: $1,043,661; CVPIA cost-share is uncertain)

c. Location and geographic boundaries. Clear Creek originates in the Trinity Mountains and flows into Whiskeytown Lake (Elevation 1,210 ft) 11 miles west of Redding (Figure 1). Lower Clear Creek flows southeast from Whiskeytown Lake for approximately 16 miles, and joins the Sacramento River near Redding (Figure 2). The total drainage area of Clear Creek upstream of the gaging station near Igo, CA is 228 mi^2. Clear Creek is part of the Trinity River Division of

the Central Valley Project, and streamflows have been regulated by Whiskeytown Dam since 1963. Transbasin diversions occur from the Trinity River Basin through Whiskeytown Lake to the Sacramento River. The Lower Clear Creek watershed consists of approximately 42% public-owned land, most of which is administered by the National Park Service (92%) and the remaining administered by BLM and CDFG.

d. Expected benefits: The project will improve the ecological health of Clear Creek by initiating and sustaining sediment supply and transport capability, restoring channel migration ability, and restoring floodplain connectivity. These processes are critical to CALFED priority species, including spring, fall, and late-fall chinook salmon, and steelhead populations. Overall salmonid production should increase as a result of this project. The proposal is a long-term solution to large-scale problems in the project reaches, which will minimize future involvement. Additionally, the project is cost effective by coupling Mined Reach channel and floodplain restoration with Reading borrow site rehabilitation. Specific project benefits include: (1) reduced juvenile and adult stranding mortality; (2) increased spawning habitat; (3) improved geomorphic processes that create and maintain habitat for salmonids and other aquatic species; (4) predator reduction in off-channel ponds; (5) improved channel-to-floodplain connectivity, improving nutrient and fine sediment cycling throughout the floodway, (6) increased native riparian vegetation, particularly canopy species (cottonwood) important for avian habitat; (7) reduced exotic vegetation through active removal and replacement with native species, and (8) maintained wetland values.

e. Background and Technical Justification. Lower Clear Creek has an extensive history of land-use impacts, including gold and aggregate mining, timber harvest, and construction of dams for water and power generation. Mining removed large volumes of aggregate from the channel and floodplains, and deposited the tailings on floodplain and terrace surfaces. The effects of aggregate extraction include: 1) substantial modification of planform and cross-sectional dimensions, resulting in sections of unstable, braided channels; 2) large in-channel and floodplain pits that entrap juvenile salmonids and support populations of predator fish; 3) permanent channel diversion into bedrock bypass channels; 4) impedance of bedload transport and spawning gravel supply; 5) reduction in spawning riffle area.

The dams have also interrupted coarse sediment supply to the channel, particularly below Whiskeytown Dam and Saeltzer Dam. Saeltzer Dam has filled with sediment and is scheduled for removal in 1999 (feasibility study funded by CALFED Category III FY 1997). The supply and instream storage of coarse bedload below Whiskeytown Dam has decreased, and remaining deposits have coarsened. These impacts have reduced the quantity and quality of anadromous salmonid habitat.

The dams have also interrupted coarse sediment supply to the channel, particularly below Whiskeytown Dam and Saeltzer Dam. Saeltzer Dam has filled with sediment and is scheduled for removal in 1999 (feasibility study funded by CALFED Category III FY 1997). The supply and instream storage of coarse sediment below Whiskeytown Dam has decreased, and remaining deposits have coarsened. These impacts have reduced the quantity and quality of anadromous salmonid habitat. Additionally, instream aggregate extraction has physically removed large quantities of aggregate from the project reach, further decreasing instream coarse sediment

supply to the point where the channel bed is resting on bedrock or clay hard-pan. This transition from alluvial channel to bedrock channel has reduced the quantity of salmonid spawning gravel deposits, which has lowered the potential salmonid spawning production of lower Clear Creek.

Clear Creek historically supported populations of spring-run, fall-run and late fall-run chinook salmon, and steelhead. Spring-run chinook no longer reproduce naturally in Clear Creek, likely a result of habitat destruction from mining and blocked access by Whiskeytown and Saeltzer Dams. Clear Creek is now managed for fall-run and late fall-run chinook salmon, and steelhead. Fall-run populations have fluctuated widely since 1951, from an estimated 10,000 adults in 1963 to fewer than 100 fish in 1978. Runs have been strong in the last three years, with escapements between 5,900 and 9,000 adult fish (ERPP 1998). Escapement numbers for late fall-run chinook are not available because they spawn in winter months when spawning surveys are prohibitive. Steelhead populations are limited by lack of access to spawning and rearing habitats in the upper watershed above the dams, and by high instream temperatures during summer. Removal of Saeltzer Dam will allow access to an additional 10 miles of oversummering habitat suitable for sustaining spring-run chinook and steelhead.

Technical Justification. The Clear Creek Floodplain Restoration Project is a multi-agency, cooperative effort to restore the lower Clear Creek floodway through both the Mined Reach and Reading Bar Reach. Many factors provide this ideal restoration opportunity, including:

- a well-organized Lower Clear Creek CRMP, represented by private landowners, resource agencies, public participants, and other stakeholders;
- a developing broad-scoped CRMP plan;
- public ownership of virtually the entire floodway downstream of Whiskeytown Dam by US Bureau of Reclamation (USBR), US Bureau of Land Management (BLM), California Department of Fish and Game (CDFG), and the National Park Service (NPS);
- publicly owned dredger tailings on-site, which can be removed at low cost and used for short-term construction material and long-term gravel management;
- potential in the near future for improving the natural variability and magnitude of streamflows downstream of Whiskeytown Dam;
- CVPIA cost-sharing funds specifically allocated for Clear Creek restoration;
- improving fall-run chinook salmon runs, with excellent potential to meet CVPIA and CALFED production targets;
- pending removal of Saeltzer Dam, Clear Creek is uniquely suited to support spring-run, fall-run, and late fall-run chinook salmon, as well as steelhead populations because of its ability to provide cool temperatures in the upper reach, and adequate flows in fall (ERPP VOL. II p.170, 1998).

The project is consistent with CALFED goals of improving and increasing aquatic and terrestrial habitats and improving ecological processes, and addresses several CALFED ecosystem elements and stressors described in the ERPP. These elements include natural sediment supply, stream meander, natural floodplain and floodplain processes, Central Valley stream temperatures, riparian and riverine aquatic habitats, seasonal wetlands, chinook salmon, and steelhead trout. In addition, the ERPP restoration vision for the Clear Creek ecological unit

identifies habitat restoration as an integral step toward improving chinook salmon and steelhead production in Clear Creek (ERPP Vol. II p. 170)

f. Monitoring and Data Evaluation: The lower Clear Creek Technical Work Group recognizes the importance of monitoring, assessing both site-specific restoration projects and river-wide responses to habitat rehabilitation. Project specific monitoring will dovetail with ongoing documentation of salmonid stranding, salmonid habitat quality, and salmonid spawning habitat utilization. This project will include a detailed project-scale monitoring plan to evaluate whether geomorphic, salmonid, and riparian project objectives are realized. Immediately after each construction phase is completed, as-built surveys will be conducted, and geomorphic, salmonid, and riparian monitoring will be initiated. Monitoring is scheduled to occur for five years after construction, with certain aspects of geomorphic monitoring (i.e., cross section surveys, bed mobility experiments, design dimension verification) dependent upon a high flow threshold (it makes no sense to monitor certain geomorphic parameters during low flow years). Monitoring methods, data format, and data evaluation will be consistent with CAMP protocols.

g. Implementability. The Clear Creek Technical Work Group has developed this project scope and phasing, and will work with the Western Shasta RCD to direct implementation. Consultants to the Technical Work Group have prepared a joint Initial Study/Environmental Assessment and submitted the necessary permits for Phase 1. The BLM is purchasing the Reading Bar property and mineral rights, which will serve as a low-cost aggregate source. Phase 1 of the project is scheduled for implementation during summer/fall 1998. With the addition of funding provided by CALFED, permitting and CEQA/NEPA document preparation and construction designs will begin immediately for Phases 2 through 4, with the target to implement Phase 2 in the summer/fall of 1999.

V. COSTS AND IMPLEMENTATION SCHEDULE

a. Budget costs

The estimated total cost of the project not already funded (Phases 2-4) is $6,483,489, of which $5,983,489 are requested from CALFED and $500,000 has been committed by the U.S. Bureau of Reclamation pending CVPIA funding. The proposed budget breakdown for Phases 2-4 is provided in Table 1.

b. Schedule milestones

Each phase of this project is scheduled to be implemented from June to October of each summer, with Phase 1 implemented in 1998, Phase 2 implemented in 1999, and so on. Environmental documentation and permits, designs, field stakeout, construction bidding, and field staking need to be performed approximately 6 to 12 months prior to each construction phase. Immediately after each construction phase is completed, as-built surveys will be conducted, and geomorphic, salmonid, and riparian monitoring will be initiated. Monitoring is scheduled to occur for five years after construction, with certain aspects of geomorphic monitoring (i.e., cross section surveys, bed mobility experiments, design dimension verification) dependent upon a high flow threshold (it makes no sense to monitor certain geomorphic parameters during low flow years). The proposed implementation schedule is summarized in Table 2.

c. Third-party impacts

This project is being implemented under the auspices of the lower Clear Creek Technical Work Group and CRMP group, which should avoid any potential negative third party impacts. All phases, including restoration of the borrow site, will be conducted land presently, or will soon be, under public ownership, which will further reduce any likelihood of third party impacts. One of the rare opportunities that lower Clear Creek provides is public ownership of most of the floodway and little to no infrastructure constraints (homes, bridges) at risk along the corridor, allowing natural dynamic river processes to be encouraged. This project will provide several positive third-party impacts, including local employment opportunities, environmental education opportunities, partnerships with local environmental groups, and economic benefits for tourism and commercial fishing industries due to increased fish populations.

	DIRECT SALARY AND BENEFITS	OVERHEAD	SERVICE CONTRACTS	MATERIAL AND ACQUISITION CONTRACTS	OTHER DIRECT COSTS	TOTAL COSTS
Phase 2						$0
1. CEQA/NEPA documentation, environmental permitting	$0		$80,000	$0	$0	$80,000
2. Design, stakeout, and bid package preparation	$0		$110,000	$0	$0	$110,000
3. Develop monitoring plan	$0		$10,000	$0	$0	$10,000
4.Construction	$0		$0	$2,666,042	$0	$2,666,042
5. Construction supervision	$40,000		$0	$0	$5,000	$45,000
6. Riparian Revegetation	$0		$0	$120,699	$0	$120,699
7. Salmonid mortality monitoring (1 year)	$5,000		$25,000	$0	$0	$30,000
8. Contingency	$0		$0	$0	$348,343	$348,343
9. Project management	$110,000		$0	$0	$10,000	$120,000
8. Indirect costs @ 15% of Direct costs	$0	$529,513	$0	$0	$0	$529,513
CVPIA cost-sharing (if funded)				-$500,000		-$500,000
Phase 2 Total:	**$155,000**	**$529,513**	**$225,000**	**$2,286,741**	**$363,343**	**$3,559,596**
Phase 3						
1. Design re-evaluation, stakeout, and bid package preparation	$0		$50,000	$0	$0	$50,000
2.Construction	$0		$0	$751,067	$0	$751,067
3. Construction supervision	$35,000		$0	$0	$2,000	$37,000
4. Riparian Revegetation	$0		$0	$90,000	$0	$90,000
5. Geomorphic, salmonid, and riparian monitoring (5 years)	$20,000		$100,000	$0	$0	$120,000
6. Contingency	$0		$0	$0	$105,133	$105,133
7. Project management	$42,000		$0	$0	$5,000	$47,000
8. Indirect costs @ 15% of Direct costs	$0	$180,030	$0	$0	$0	$180,030
Phase 3 Total:	**$97,000**	**$180,030**	**$150,000**	**$841,067**	**$112,133**	**$1,380,231**
Phase 4						
1. Design re-evaluation, stakeout, and bid package preparation	$0		$40,000	$0	$0	$40,000
2.Construction	$0		$0	$582,883	$0	$582,883
3. Construction supervision	$25,000		$0	$0	$2,144	$27,144
4. Riparian Revegetation	$0		$0	$60,000	$0	$60,000
5. Geomorphic, salmonid, and riparian monitoring (5 years)	$20,000		$60,000	$0	$0	$80,000
6. Contingency	$0		$0	$0	$80,360	$80,360
7. Project management	$32,144		$0	$0	$5,000	$37,144
8. Indirect costs @ 15% of Direct costs	$0	$136,130	$0	$0	$0	$136,130
Phase 4 Total:	**$77,144**	**$136,130**	**$100,000**	**$642,883**	**$87,504**	**$1,043,661**
					GRAND TOTAL:	**$5,983,489**

Table 1. Projected budget for Phases 2 through 4.

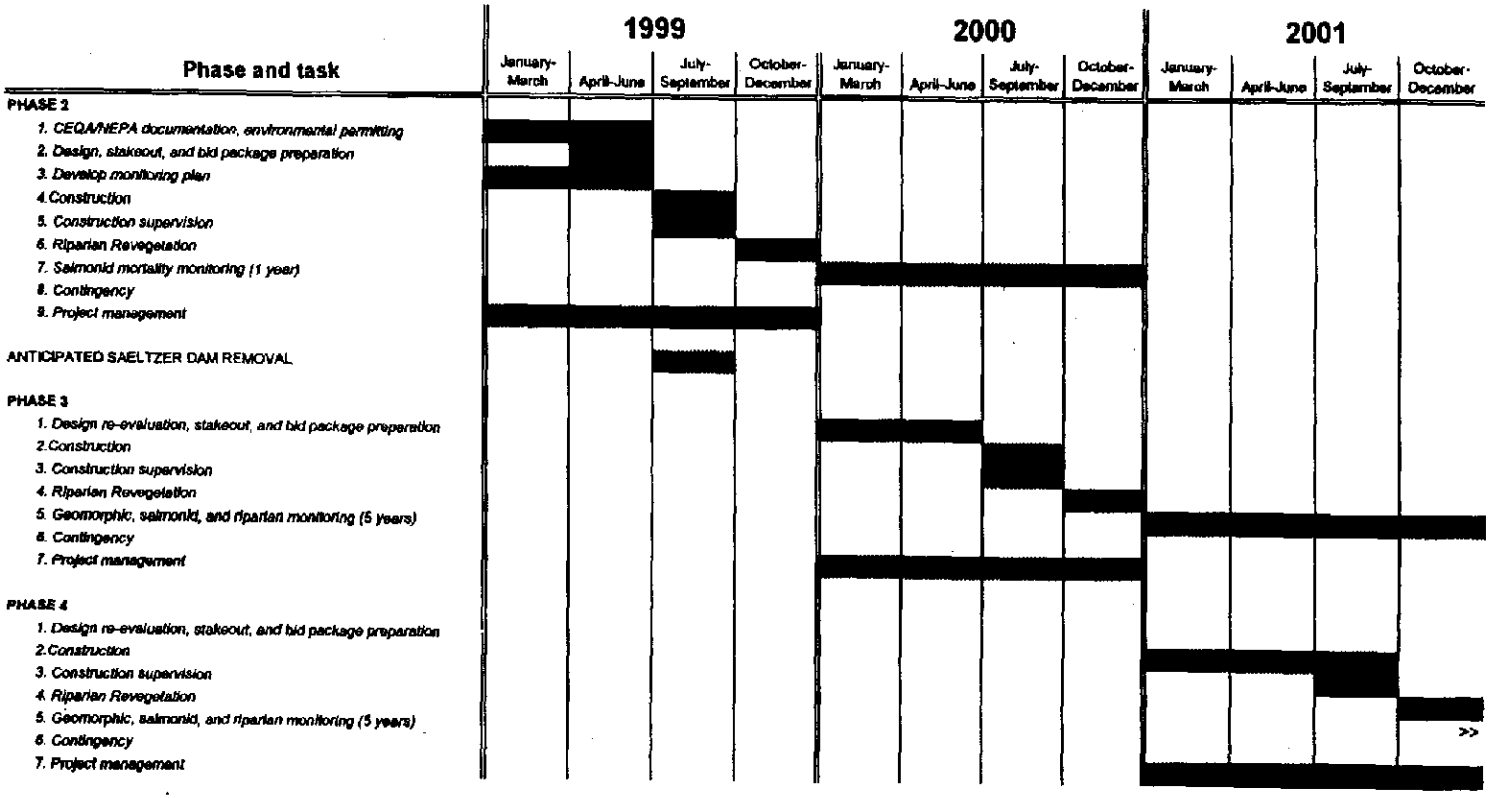

Table 2. Proposed project scheduling for Phases 2 through 4.

VI. APPLICANT QUALIFICATIONS

This project will be implemented under the direction of the Western Shasta Resource Conservation District, which has been implementing wildlife and fisheries restoration projects, erosion control projects, fuels reduction projects, and coordinated resource planning projects in Shasta County since 1957. In 1997 and 1998, the RCD has implemented numerous projects on lower Clear Creek, including spawning gravel introduction, a watershed analysis, and erosion control projects.

The RCD will coordinate the project with the lower Clear Creek CRMP group and the lower Clear Creek Technical Work Group. The Technical Work Group is composed of federal, state and local resource agencies and will provide technical guidance and input on restoration designs and activities for this project.

The CRMP is composed of private landowners, stakeholder groups, and agency representatives. The CRMP will serve to give feedback from landowners and the public on restoration designs and activities for this project.

Jeff Souza, Projects Manager for the RCD will be responsible for the management of this project. Jeff has been the Projects Manager for the RCD for the past three years and has managed over two dozen projects during that time dealing with fisheries and wildlife restoration, erosion control, fuels reduction and coordinated resource planning. He has a B.S. in Environmental Biology and a M.S. in Agriculture and has over ten years of experience in resource management and restoration.

Several technical aspects of the project will be accomplished through service contracts with qualified consulting firms. Specific project design and environmental permitting will be primarily accomplished in this manner. Upon successful funding, the RCD will select contractors through a competitive bidding process. Construction contracts will also be let by the RCD using the California Public Construction Cost Accounting Procedures that have been adopted by the RCD.

No potential conflicts of interest are anticipated.

VII. COMPLIANCE WITH TERMS AND CONDITIONS

The Western Shasta Resource Conservation District currently has SF 424 series forms on file for several projects administered by the USDI-Bureau of Reclamation. No deviations from the standard terms and conditions are anticipated.

A completed DI-2010 form is attached.

U.S. Department of the Interior

Certifications Regarding Debarment, Suspension and Other Responsibility Matters, Drug-Free Workplace Requirements and Lobbying

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used or use this form for certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

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CHECK ✓ IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

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CHECK __ IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
June 1988
(This form replaces DI-1953, DI-1954, DI-1956, DI-1958 and DI-1963)

I —0 0 9 3 6

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK ✓ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an ongoing drug-free awareness program to inform employees about–
(1) The dangers of drug abuse in the workplace;
(2) The grantee's policy of maintaining a drug-free workplace;
(3) Any available drug counseling, rehabilitation, and employee assistance programs; and
(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will –
(1) Abide by the terms of the statement; and
(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted –
(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

3179 Bechelli Lane, Suite 110

Redding, CA 96002, Shasta County

Check___if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK__IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL

Alternate II. (Grantees Who Are Individuals)

(a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;

(b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

DI-2010
June 1996
(This form replaces DI-1953, DI-1954, DI-1956, DI-1958 and DI-1962)

PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK ✓ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND THE AMOUNT EXCEEDS $100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT; SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK __ IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF $150,000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING $100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

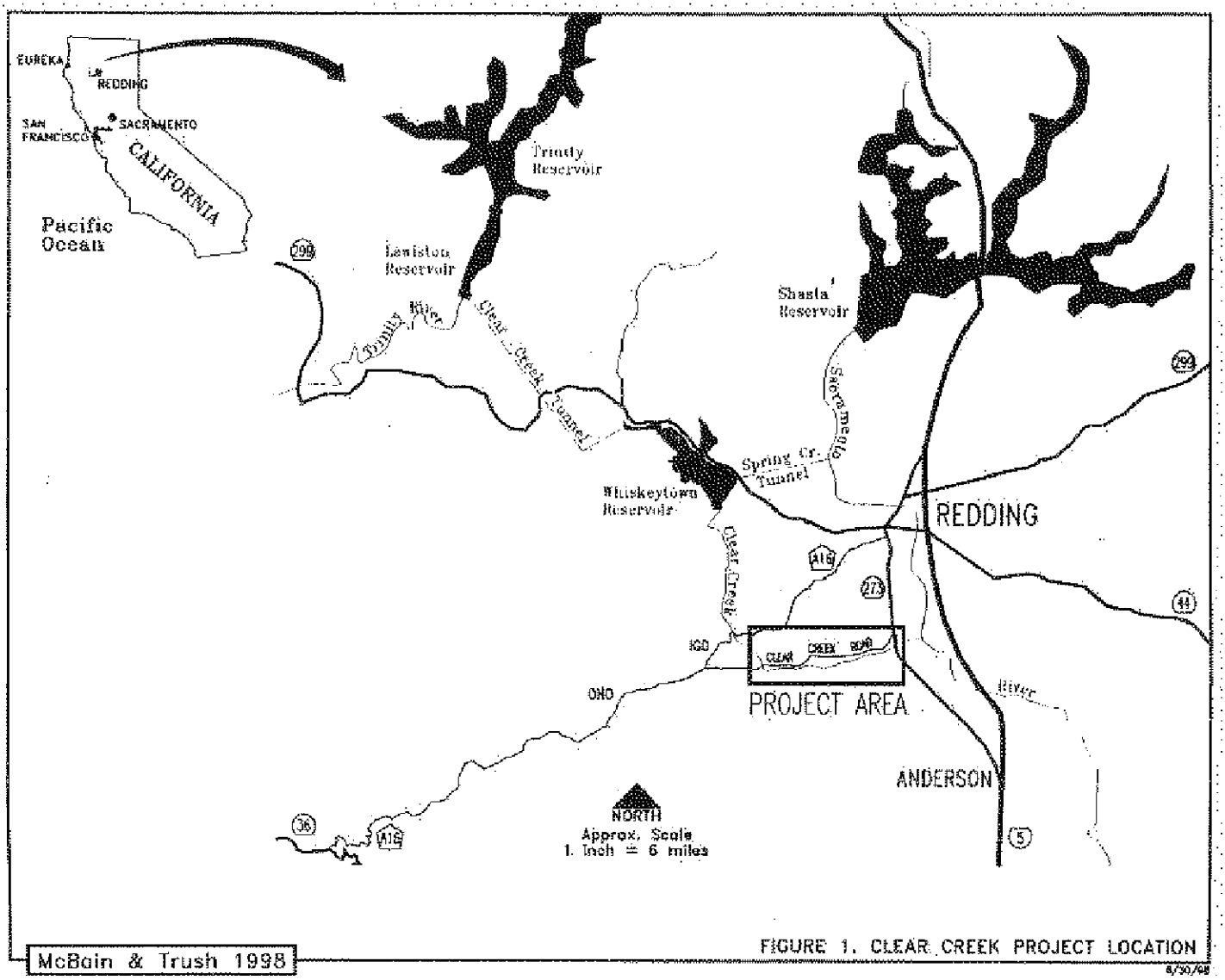
TYPED NAME AND TITLE Jeff Souza, Projects Manager

DATE 7-1-98

DI-2010
June 1988
(This form replaces DI-1953, DI-1954, DI-1955, DI-1956 and DI-1943)

I —009368

I-009368



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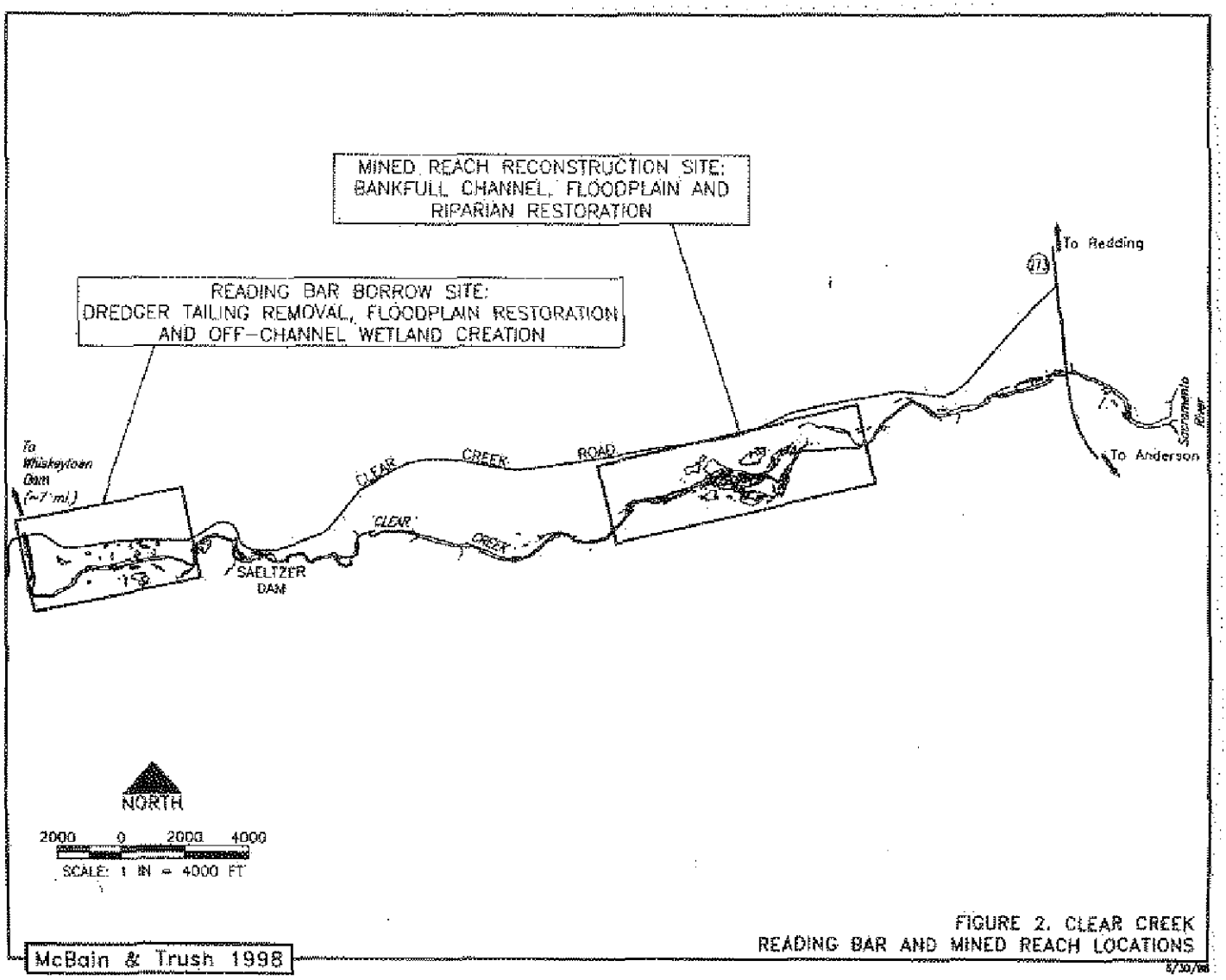

FIGURE 2. CLEAR CREEK
READING BAR AND MINED REACH LOCATIONS

8/30/98

I-009370

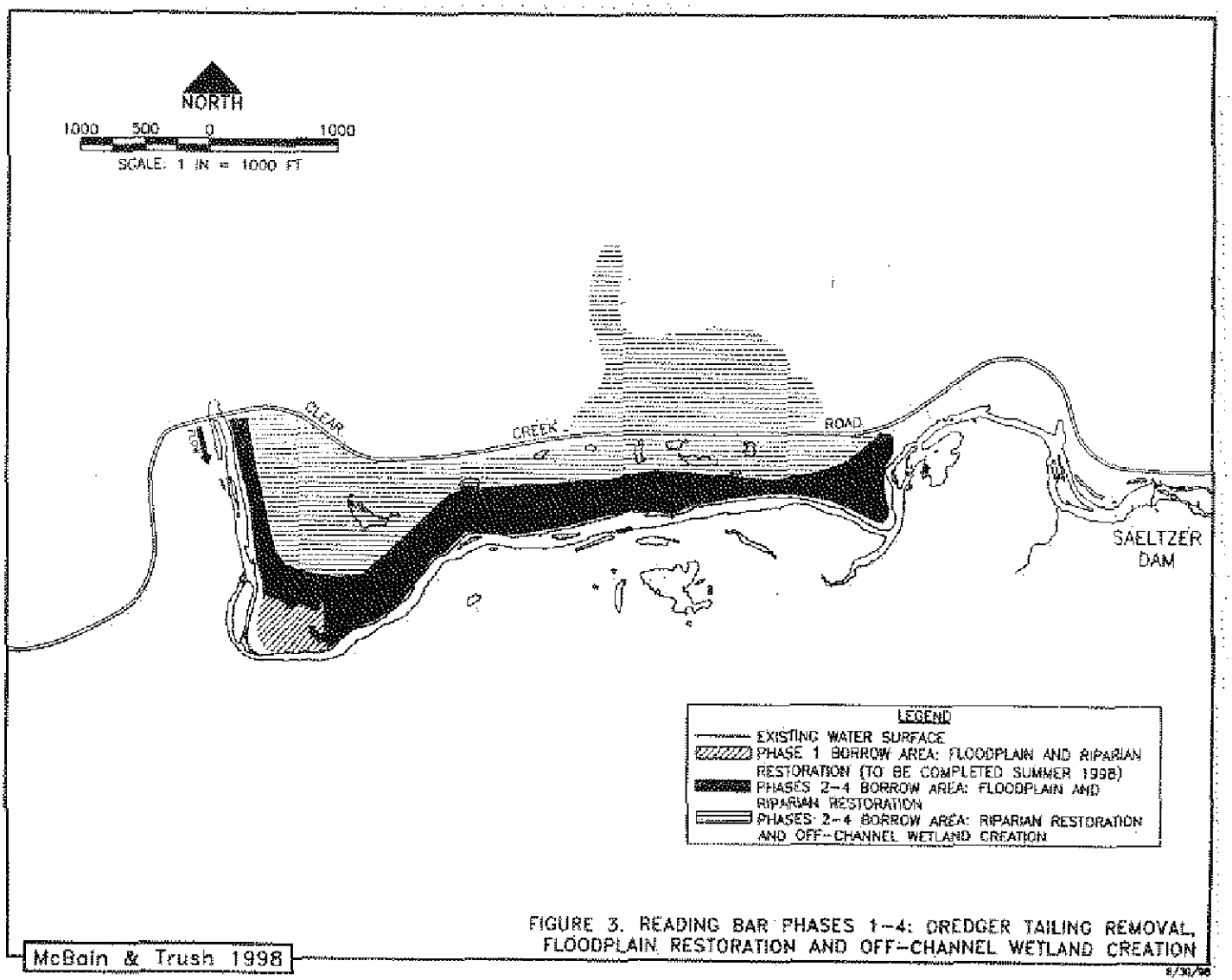

FIGURE 3. READING BAR PHASES 1-4: DREDGER TAILING REMOVAL, FLOODPLAIN RESTORATION AND OFF-CHANNEL WETLAND CREATION

McBain & Trush 1998

8/30/98

I-009371

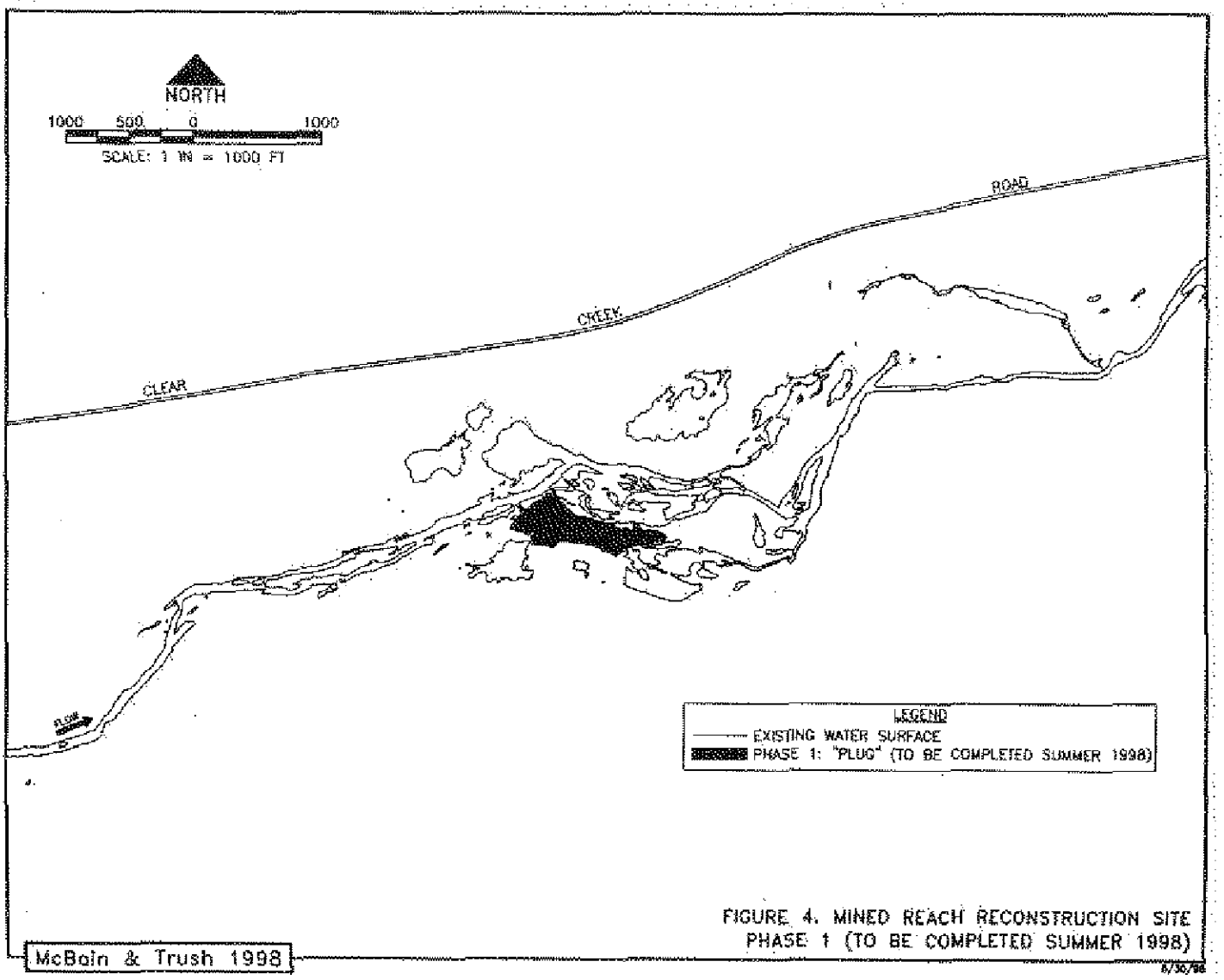

FIGURE 4. MINED REACH RECONSTRUCTION SITE
PHASE 1 (TO BE COMPLETED SUMMER 1998)

8/30/98

I-009372

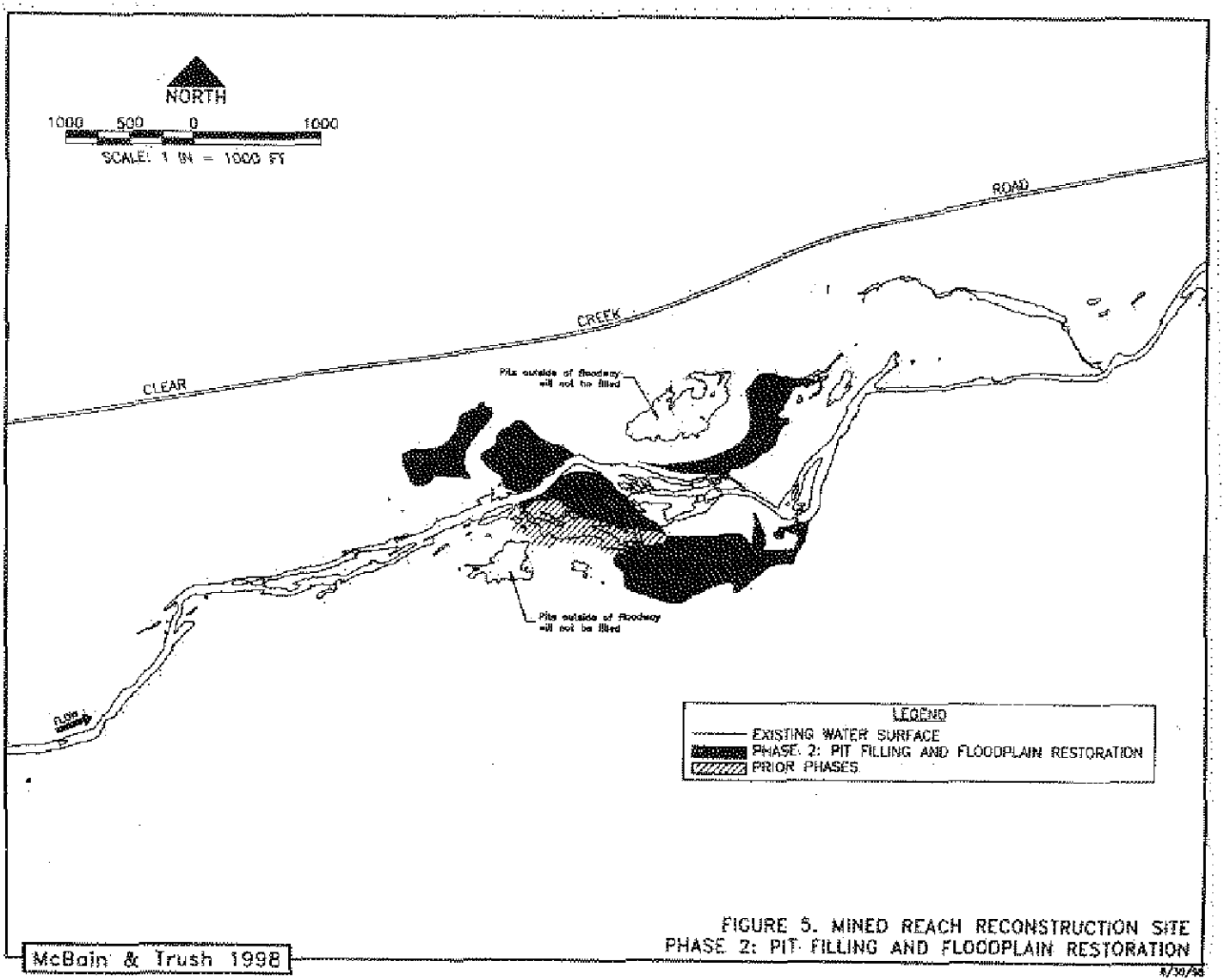

FIGURE 5. MINED REACH RECONSTRUCTION SITE
PHASE 2: PIT FILLING AND FLOODPLAIN RESTORATION

8/30/98

I-009373

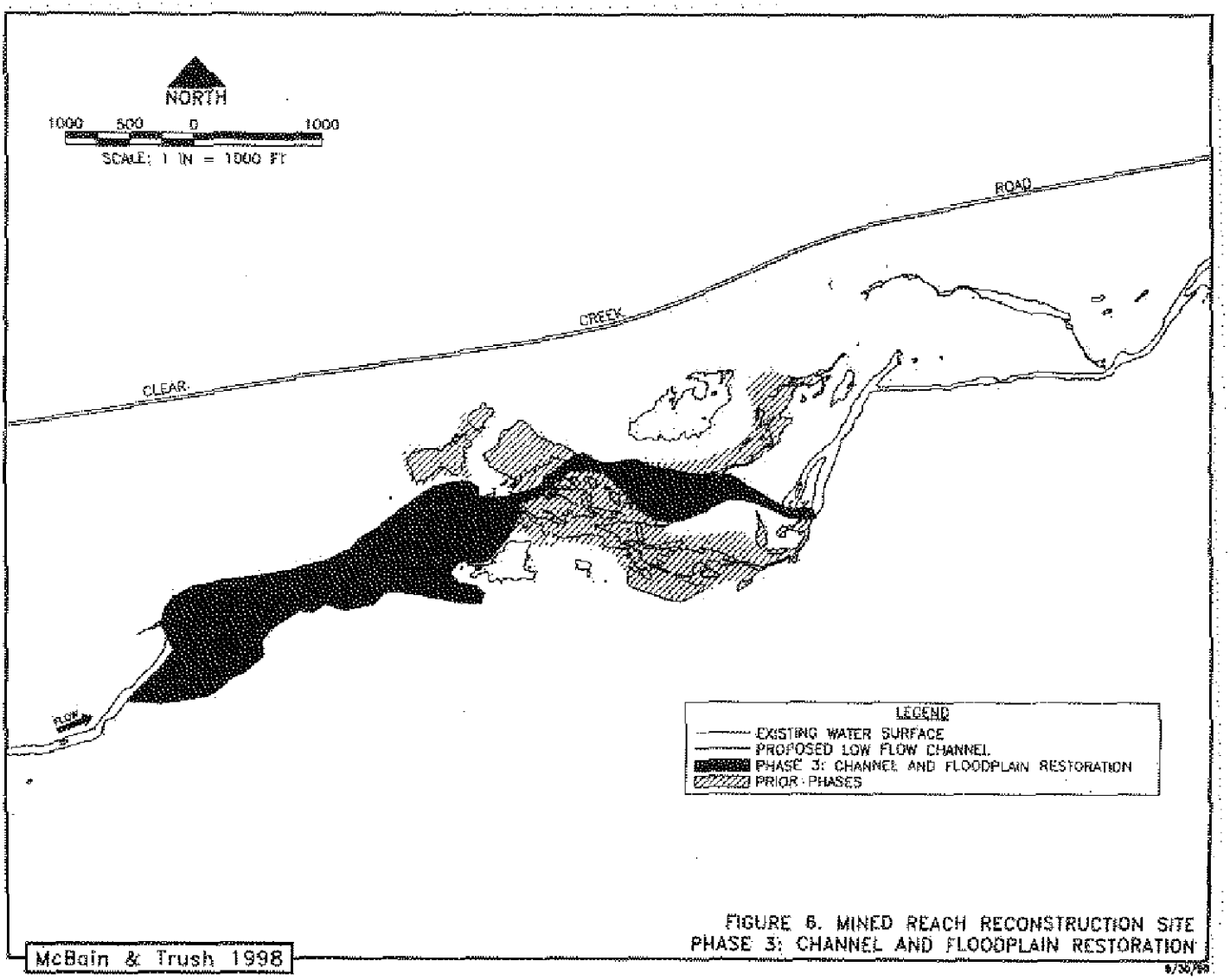

FIGURE 6. MINED REACH RECONSTRUCTION SITE
PHASE 3: CHANNEL AND FLOODPLAIN RESTORATION

9/30/98

I-009374

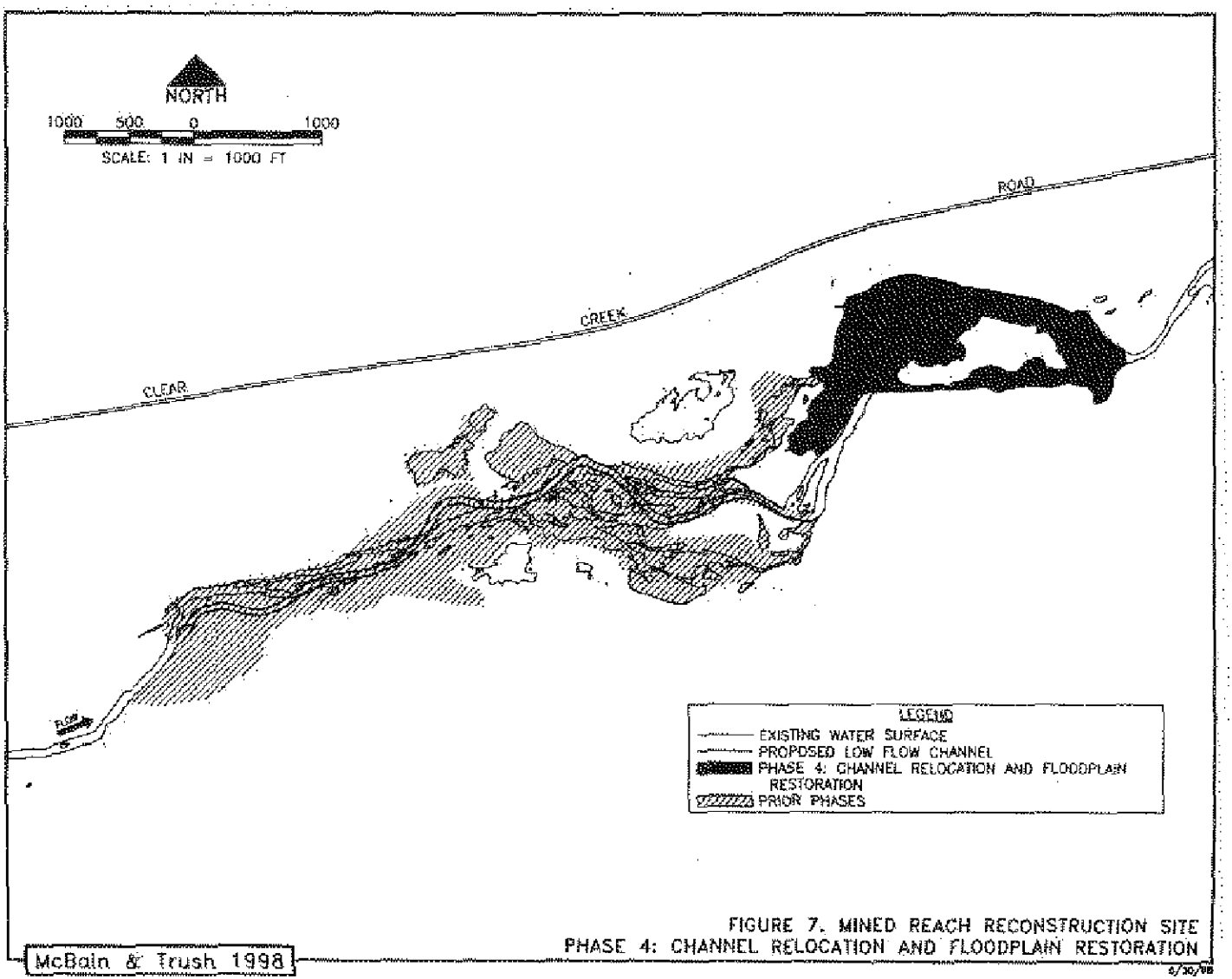

FIGURE 7. MINED REACH RECONSTRUCTION SITE
PHASE 4: CHANNEL RELOCATION AND FLOODPLAIN RESTORATION

6/30/98

I-009375